

Politecnico di Milano

PhD in Materials Engineering

Research Title: Materials for applications in the field of electrochemical energy storage: SPS (Spark Plasma Sintering) synthesis and characterization

Scholarships and Financial support	
Monthly net income of PhD scholarship (max 36 months)	€ 1300 (In case of a change of the welfare rates during the three-year period, the amount could be slightly modified)
Number of scholarships	1
Beginning of PhD	1/2/2017
Deadline for application	9 gennaio 2017
Context of the research activity	
Motivations and objectives of the research in this field	The penetration of renewable energy sources and related energy storage systems are becoming increasingly important and require a careful management for the control and stability of power grids.
Methods and techniques that will be developed and used to carry out the research	The thesis work will be carried out at the Politecnico di Milano and, mainly, at the Ricerca sul Sistema Energetico Spa (Milano for materials synthesis and electrochemical characterization; Piacenza for characterization by electron microscopy). Spark Plasma Sintering technique will be used and for the optimization of process parameters, DOE approach will adopted. http://www.rse-web.it/persona.page?RSE_originalURI=/persona/gruppo/B01&RSE_manipulatePath=yes&country=eng

Educational objectives	The student will follow the courses offered by the School. Moreover, he will be trained in the use of atomizers, powder grinding and sieving equipment, in the use of SPS equipment, and possibly enabled the use of the SEM. The electrochemical characterization of produced materials is part of the educational purposes. PhD student will be instructed in the definition of the matrix of experimental tests in order to optimize the experimental resources.
Job opportunities	The topics covered in the three years are extremely important, with high potential for employment opportunities in the field of energy storage systems in Italy and abroad.
Composition of the research group	1 associate professor: Massimiliano Bestetti 2 assistant professors: Antonello Vincenzo, Silvia Franz 1 technician: Fabio Pagano 2 PhD student 1 Post doc
Names of the research directors	<i>Massimiliano Bestetti (Politecnico di Milano)</i> <i>Federico Maria Cernuschi (Ricerca sul Sistema Energetico Spa)</i>
E-mail address, phone number and web-page	massimiliano.bestetti@polimi.it federico.cernuschi@rse-web.it
List of Universities, Companies, Agencies and/or National or International Institutions that are cooperating in the research	1. Politecnico di Milano 2. Ricerca sul sistema Energetico RSE Spa (www.rse-web.it)
Additional support	
<u>Housing:</u> financial aid per PhD student per year (gross amount)	<u>Foreign students* inserire solo se rilevante</u> 1 st year 0 euros per student 2 nd year.0 euros per student 3 rd year: 0 euros per student <u>Out-of-town residents (more than 80 Km out of Milano)</u> 1 st year: 0 euros per student 2 nd year: 0 euros per student 3 rd year: 0 euros per student
<u>Funding for educational activities</u> (purchase of study books and material, funding for participation in courses, summer schools, workshops and conferences): funding per PhD student per year	1 st year: - 2 nd year: € 1370 3 rd year: € 1370
<u>Teaching assistantship:</u> availability of funding in recognition of	There are various forms of financial aid for activities of support to the teaching practice.

support to teaching activities by the PhD student	The PhD student is encouraged to take part in these activities, within the limits allowed by the regulations.
<u>Computer availability:</u>	1 st year: <i>individual use</i> 2 nd year: <i>individual use</i> 3 rd year: <i>individual use</i>
<u>Desk availability:</u>	1 st year: <i>individual use</i> 2 nd year: <i>individual use</i> 3 rd year: <i>individual use</i>